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XLIX.—*A Revision of the Asilidæ of Australasia.*  
By GERTRUDE RICARDO.

[Concluded from p. 425.]

PARARATUS, gen. nov.

Allied to *Aratus*, v. d. Wulp (now *Neoaratus*), in having no bristles on the abdomen, and in the neuriation of the *wing*, but is distinguished from it by the non-dilation of the *wing* on its fore border in both sexes, and by the genital organs, which in the male are very large and club-shaped; the ovipositor of the female is compressed at the sides, bringing it thus near *Neoitamus* in this respect, from which, however, the neuriation of *wing* and large size of the species distinguish it. It is also allied to *Blepharotes* in the large genital organs of male. From *Asilus* in *sensu stricto* it is distinguished by the character of these organs.

Type and only species of genus from Victoria, New S. Wales.

*Pararatus macrostylus*, Loew.

Zeitschr. f. d. ges. Naturwiss. N. F. x. (xlv.) p. 75 (*Blepharotes*) (1874).

One male and one female in Brit. Mus. Coll. from Champion Bay, W. Australia (*Du Boulay*). Four males from Mallee District, Victoria, in Mr. French's coll.

Loew divided this species off from *Blepharotes coriarius*, stating he had often seen specimens of both species in  
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collections under *B. coriarius*. After carefully studying his description of his new species I am convinced the above specimens are identical with his species *macrostylus* and that they do not belong to the genus *Blepharotes*, though it is very unlike Loew to have overlooked the following characters which preclude it from belonging to *Blepharotes*, viz.: ovipositor of female, which is long and compressed at sides; short style of *antennæ* and short third joint, the absence of thick tuft-like hairs at sides of *abdomen*, and the very much slighter build of *legs*; these last three characters were noticed by Loew in his description, but of the ovipositor he makes no mention. The neuration of *wings* is very similar. Small males of *Blepharotes flava* have a slight general resemblance to this species, but the thick tuft-like hairs at sides of *abdomen* will at once distinguish them.

This is a large species: *abdomen* fulvous with reddish-yellow pubescence and black apex; *thorax* blackish; *wings* large, hyaline. *Legs* wholly black.

Length 27–35 mm.

*Male*.—*Face* blackish, covered with yellowish tomentum; the tubercle large, occupying the lower part of face, bearing the moustache composed of long white hairs. *Palpi* black, with black hairs. *Antennæ* black, the third joint with a long terminal bristle; the first two joints short, the first the longest, both with black hairs; the third conical, with a rather long tapering point, the joint a little longer than the first two joints together, the bristle nearly as long as the joint. *Forehead* brownish black, with white pubescence, white hairs on hind part of head, a few black hairs at vertex. *Thorax* brownish black, with black pubescence and two long bristles before the suture, two beyond, and several on posterior part of thorax; sides and breast with white pubescence. *Scutellum* same colour, with three stout bristles on posterior border. *Abdomen* flat, rather broad compared with *Asilus* species, at its widest about 5 mm., becoming narrower at apex; the first segment black with black pubescence, the others bright reddish yellow with fulvous pubescence; sides with fairly long, fine, yellowish-white hairs, thickest on the second segment, not disposed as tufts; posterior border of last segment and the genital organs black, the latter large and prominent with black pubescence; underside black, bare, with black hairs at sides. *Legs* blackish, all the femora armed with black bristles; *coxæ* with long white hairs, pubescence elsewhere and all bristles black. *Wings* hyaline, the posterior branch of fork strongly curved; the second posterior cell broad at base, bulging into the first, the third

wide, the fourth closed, the anal cell closed some way from the border; the small transverse vein is situated about the middle of the discal cell; veins black at base and on fore border, then reddish. Halteres black.

*Female* identical. Ovipositor blackish, long, including the sixth and seventh segments, compressed at sides.

#### NEOITAMUS, Osten-Sacken.

Cat. Dipt. N. Amer. ed. 2, pp. 82 & 235 (1878)

*Itamus*, Loew, Linn. Ent. iv. p. 81 (1849), præocc. Schmidt, Goeb. Coll., 1846.

The following species are recorded from Australia, Tasmania, and New Zealand:—

*Neoitamus varius*, Walker, List Dipt. ii. p. 457 (1849), et pt. vii. Suppl. 3, p. 742 [*Asilus*] (1835); Hutton, Trans. New Z. Inst. xxxiii. p. 22 [*Itamus*] (1901).—*Asilus fraternus* (? females only), Macq., Dipt. Exot. Suppl. i. p. 219 (1844); v. d. Wulp, Sumatra Exp. Dipt. p. 25 [*Itamus*] (1881). *Asilus bulbus*, Walker, var. B, List Dipt. pt. ii. p. 466 (1849). *Itamus melanopogon*, Schiner, 'Novara' Reise, Dipt. p. 190 (1868).

*Neoitamus mistipes*, Macq., Dipt. Exot. Suppl. iv. p. 398, pl. ix. fig. 3 [*Asilus*] (1849).

*Neoitamus bulbus*, Walker, List Dipt. ii. p. 465 [*Asilus*] (1849), et vii. Suppl. 3, p. 743 [*Asilus*] (1855).—*Itamus inquisitor*, Nowicki, Mem. d. Krakauer k.-k. Akad. d. Wiss. ii. p. 21 [*Itamus*] (1875), et Beitr. z. Kenntniss d. Dipt. Fauna Neu Seelands, 21 [*Itamus*] (1875).

*Neoitamus planiceps*, Schiner, 'Novara' Reise, Dipt. p. 189 [*Itamus*] (1868).

*Neoitamus hyalipennis*, sp. n.

The synonymy of these species here given differs considerably from that given by Kertész in his Cat. Dipt., but I believe, from the examination of Walker's types, this will prove correct.

*Asilus sydneyensis* does not belong to this genus.

*Neoitamus varius*, Walker.

*Asilus fraternus*, Macq. (females only).

*Asilus bulbus*, Walker, var. B.

*Itamus melanopogon*, Schiner,

Macquart's type (male) and his original series of specimens of females seen in Paris Museum, 12. 4. 11, from Tasmania. The females were identical in all respects with a specimen of Walker's *Asilus varius* which I took for comparison; the male and another male specimen were identical, with the exception of the genitalia, which were not so swollen and large, but more long oval, and the white hairs on abdomen were not

so numerous or long as in the male specimen of *varius*. It appears probable that Macquart's male belongs to another species of *Neoitamus*, but the question must be left in abeyance till further material is available, and for this reason priority is given to Walker's name.

In Brit. Mus. Coll.

Types of *Asilus varius* consist of two males, co-types, one presented by Col. Sinclair, one from Mr. Earl's collection; and three females, co-types, added in the 7th volume 'List Dipt. Brit. Mus.,' from Auckland, presented by Col. Bolton; a long series of specimens are in the collection from New Zealand.

A small blackish species, the *legs* bluish black; *tibiæ* reddish yellow. *Wings* hyaline, greyish round the posterior border and at apex.

Length, ♂ 17–18 mm., ♀ 18 mm.

*Face* black, with white or yellowish tomentum at sides; tubercle large, black, shining; the moustache composed of many black bristles and a few long white hairs below. *Antennæ* with black hairs on the first two joints. Beard white and the hairs round head white. Head excised a little behind, with black incurved hairs at occiput. *Thorax* black, with two ashy-grey or yellowish tomentose stripes, grey at sides, the pubescence on dorsum black and some short black bristles present, with longer ones at the sides. *Scutellum* the same, with four large black bristles on posterior border, often yellow in the female. *Abdomen* black, with grey or whitish segmentations and short black pubescence, some white hairs at base on segmentations and yellow bristles at sides; genitalia in male club-shaped, large, swollen at tips, black and shining with black hairs and a few white ones intermixed; ovipositor in female long, including the sixth and seventh segments of abdomen. *Legs* black; femora with long white hairs below, the middle and posterior pair with bristles on underside; *tibiæ* testaceous; bristles on legs black. *Wings* with the small transverse vein at or beyond middle of discal cell.

Walker's var. B of *bulbus*, a female, is identical with the types of *varius*.

*Itamus melanopogon* is identical, judging from the description given by Schiner; the type came from Auckland.

The original description of *N. fraternus*, by Macquart, of male and female is very short. V. d. Wulp described more fully a female specimen from Rawas, Sumatra, he considered to be identical with it; the only difference in the description appears to be that the outsides of *tibiæ* have a black stripe

and the first joint of fore tarsi is brown-yellow. The ovipositor he mentioned as including the last three segments of abdomen, and being shining black.

*Neoitamus mistipes*, Macquart.

Type, a female, seen in Paris Museum, 12. 4. 11. A male specimen I took for comparison is identical with this type; the bristles on the legs are more largely white in the male than in the female type, which has only a few white ones on the middle and posterior femora.

In Brit. Mus. Coll.

Male and female from Mt. Gambier, S. Australia (*W. Wesche*), 1905, and another male and female from same locality.

A blackish species; the *abdomen*, especially in the male, covered with yellowish tomentum; tibiæ yellowish, femora yellow below; bristles on the *legs* chiefly yellow. *Wings* hyaline.

Length 14 mm.

*Male*.—*Face* covered with pale yellow tomentum, the tubercle distinct; moustache composed of weak yellowish-white bristles and two black longer ones above. Beard white. *Antennæ* blackish, the first two joints with black hairs, the third joint conical with a long terminal arista. *Forehead* brown, with black hairs at the sides. Hind part of head with dull yellow hairs. *Thorax* blackish brown, covered with yellowish tomentum, two median and a lateral interrupted stripe on each side black; shoulders covered with ashy-grey tomentum; between the median and lateral stripes long blackish hairs, shorter ones on anterior part of thorax; sides and posterior part of thorax with stout black bristles. *Scutellum* covered with ashy-grey tomentum; two weak, yellow, long bristles on its posterior border. *Abdomen* blackish brown, besides the yellowish tomentum, which is most apparent on the sides, the dorsum is covered with very short yellow hairs; first segment with a fringe posteriorly of yellow hairs; sides of segmentations with yellow bristles, often continued along posterior border of segment, sides with short yellow hairs. Genital organs black, shining, large, club-shaped. *Leys* black, the underside of all femora and the tibiæ for two-thirds of their length yellow; the coxæ covered with grey tomentum and with long white hairs; femora with long white hairs below; tibiæ with some long weak yellow bristles on their outer borders, the bristles on tarsi yellow. *Wings* clear; veins brown, the small transverse

vein just beyond the middle of discal cell; the vein closing fourth posterior cell convex, the second posterior cell wide at its base.

*Female* identical. The black bristles on upper part of moustache more numerous. The tomentum of *thorax* more grey than yellow. Ovipositor long, the last two segments included in it, black, shining, with some pale yellow hairs at sides.

This species and *N. hyalipennis* are both distinguished from *N. fraternus* by the quite clear wings.

*Neoitamus bulbus*, Walker.

*Itamus inquisitor*, Nowicki.

Types, two female co-types (not a male and female as Walker states); one measures 22 mm. in length, the other 14 mm., which roughly corresponds to Walker's length  $6\frac{1}{2}$ –10 lines, so that it appears probable he mistook one of these females for a male. Both are in a very dirty dilapidated condition, but they correspond fairly to the long careful description given by Nowicki and appear to be the species he was describing. It may be distinguished from *N. fraternus* at once by the presence of spines on the fore femora below and by the colour of the *legs*, which are chestnut-coloured, the femora with a black stripe below; apices of tibiae and all the tarsi black, the moustache is entirely black. Nowicki mentions some yellowish-white hairs; his type also came from New Zealand.

The var. B of Walker does not belong to this species, but is identical with *N. varius*, Wlk.

*Neoitamus planiceps*, ♂, Schiner.

From Australia, described from one male specimen only.

Schiner remarks it cannot be the same as *Asilus setifemoratus* or *rufotarsus*, Macquart, and describes the fore femora as armed with four black bristles below, which precludes it from being identical with *N. fraternus*, Macq. *Legs* are black, the tibiae yellow, so that it can hardly be the same as *N. bulbus*, Wlk., or *N. mistipes*, Macq.

*Neoitamus hyalipennis*, sp. n.

Co-types, one male and two females from Mr. French's coll., Mallee District, Victoria.

This species is at once distinguished from *N. mistipes* by the wholly black femora. A black species with a very thick

black moustache. *Legs* stout, armed with many bristles. *Tibiæ* only yellow at their base.

Length, ♂ 16, ♀ 20 mm.

*Male*.—*Face* covered with grey tomentum; the tubercle large, black; the moustache composed of many black bristly hairs, with white ones below and in the middle. Beard white. *Antennæ* black, the black hairs on the first two joints thick and long. Hind part of head at vertex with black hairs, curled upwards, elsewhere white. *Thorax* black, with grey tomentum and black stripes, the dorsum with black pubescence, rather approaching in their arrangement species of *Dysmachus*; black bristles at sides strong and numerous, posteriorly the black hairs are long and bristly. *Scutellum* with short whitish pubescence and four weak, long, yellow bristles on its posterior border. *Abdomen* blackish, with grey tomentum at sides; dorsum with short white hairs: segmentations with grey tomentum, sides with longer white hairs. *Genitalia* black, shining, long, club-shaped, with black pubescence. *Legs* black; *coxæ* with grey tomentum and long white hairs; fore femora with long blackish hairs below, shorter ones above intermixed with white ones, the middle pair with short black pubescence and strong black bristles below and at apex, the hind pair with shorter black bristles below; *tibiæ* yellow at base, the fore *tibiæ* with long black hairs below and shorter ones above and with stout black bristles, the others the same, but with no long black hairs; *tarsi* with black bristles, fore *tibiæ* at apex and *meta-tarsi* with short yellowish pubescence below. *Wings* clear, veins black; second posterior cell wide at its base, the vein closing fourth posterior convex; the small transverse vein situated on two-thirds of discal cell.

*Female* identical. Ovipositor as in *N. mistipes*.

The species of *Neoitamus* from other parts of the Australasian Region (not Australia) are *Neoitamus griseus*, Wied, *involutus*, and *longistylus*, Wlk., from New Guinea and elsewhere. *Neoitamus melanopygus* and *spinicauda*, v. d. Wulp, from Celebes.

*Neoitamus involutus*, Walker.

Proc. Linn. Soc. v. p. 281 [*Asilus*] (1861), et vi. p. 7 [*Asilus*] (1862);

Ost.-Sack., Ann. Mus. Civ. Genova, xvi. p. 423 [*Itamus*] (1882).

*Asilus normalis*, Walker, Proc. Linn. Soc. London, vi. p. 18 (1862).

These two types appear identical.

The types of *normalis*, male and female, come from Ternate; the specimens, females, of *involutus* from Ternate and Gilolo.

## CERDISTUS, LOEW.

Linn. Ent. iv. p. 74 (1849).

Schiner recorded the one species of this genus from Australia, and another species of Walker is added here, so that two species are recorded from this region as follows:—

*Cerdistus maricus*, Walker. Dipt. Saund. i. p. 141 [*Asilus*] (1851), et

List Dipt. vii. Suppl. 3. p. 737 [*Asilus*] (1855).

*Cerdistus sydneyensis*, Schiner, 'Novara' Reise, Dipt. p. 187 (1868).

*Cerdistus maricus*, Walker.

This small species appears to belong to the above genus, but does not answer to the description of Schiner's species.

Type (♂) from Port Philip (*Hunter*) and another female from Queensland (*Dr. T. L. Bancroft*).

Black. *Abdomen* with grey segmentations. *Legs* black, the tibiæ and first joint of tarsi obscurely reddish yellow, the hind legs more distinctly so. Moustache black above, white below. *Wings* hyaline.

Length 12 and 14 mm.

*Face* blackish, with white tomentum at sides; in the fresh female the *face* is more brownish, the tubercle small, the moustache not reaching beyond it, composed of stout black bristles above and long, soft, white hairs below, in the type the black bristles are not so apparent. Beard white. *Antennæ* black; the first two joints with black pubescence, the style of the third long. Head deeply excised behind. *Thorax* black, with white tomentose stripes and sides; two black bristles situated on side at suture, one above the other, and weak yellowish ones behind; on dorsum short black hairs and white ones posteriorly. *Scutellum* black, with whitish tomentum and two weak yellow long bristles. *Abdomen* black, with whitish-grey segmentations, and with white hairs at the sides; short black hairs on anterior border of segmentations, and at sides of segmentations a few black hairs. Ovipositor about as long as the last two segments, brown and shining. *Legs* with black bristles; on the hind tibiæ a few white ones intermixed; femora with short white hairs below. *Wings* hyaline, the small transverse vein beyond the middle of the discal cell; the fourth posterior and anal cells closed, the former with a short stalk; veins black.

*Cerdistus sydneyensis*, Schiner.

Described as black. *Abdomen* with grey segmentations.



*Legs* black, the base of all femora and tibiæ rusty yellow. *Face* with white tomentum; the moustache black, with some white hairs below. *Wings* hyaline, but broadly and distinctly tinged with grey round the whole border. 5 lines.

Schiner records four pair from Sydney.

#### NEOARATUS, Ricardo.

*Aratus*, v. d. Wulp, Termés. Füzetek, xxi. p. 236 (1898) (præocc. Howard, Hym. 1896).

This genus was formed for *Asilus hercules*, Wied., by v. d. Wulp, who satisfied himself as to the probability of the correctness of the three synonyms (see below); he also suggested that *Rhadiurgus macquarti*, Bigot, and *Asilus tasmaniæ*, Macq., might belong to this genus, which he characterized as follows:—

*Face* moderately broad, with prominent tubercle, which, with the thick moustache, takes up two-thirds of the face. *Antennæ* small in proportion, the two basal joints same length; the third rather shorter than the two together, pointed at end, with a naked arista. *Thorax* short-haired, only posteriorly with some long hairs, but without bristles. *Abdomen* fine-haired, slender, no bristles at sides; eighth segment hidden (correct only of ♂); genital organs small; ovipositor egg-shaped, with two small lamellæ at end. *Legs* stout, femora not incrassate. *Wings* shorter than body, in the male dilated on the fore border; the submarginal cell rilled in both sexes; the discal cell long and narrow, the upper vein from it very much bent outwards, so that the second very broad posterior cell bulges very considerably into the first one; the fourth is closed, also the anal cell.

This last character is common to the large species of *Asilus*, such as *rufiventris*, *rufithorax*, *pelago*, *hyagnis*, and the submarginal cell is frequently rilled in them, and even the fore border of wing very slightly dilated, so that it appears as if the very great dilatation of wing on fore border in *Neoaratus hercules* is the only character that divides it off from *Asilus in sensu stricto*, and it remains the only species in the genus. *Rhadiurgus macquarti* is a male from New Caledonia; Bigot makes no mention in his description of the wing being dilated; without seeing his type it is impossible to decide whether he placed it in the right genus.

*Neoaratus hercules*, Wied., Auss. zweifl. Ins. i. p. 425 [*Asilus*] (1830).

Type of genus.—*Asilus plicatus*, Wied., l. c. ii. p. 643 (1830); Froggatt, Australian Insects, p. 299 (1907). *Asilus giganteus*, Macq., Dipt. Exot. Suppl. ii. p. 59, pl. i. fig. 9 (1847). *Asilus grandis*, Macq. l. c. Suppl. iii. p. 190, pl. iii. fig. 4 (1848).

For full list of references see Kertész, Cat. Dipt. (1909).

In Brit. Mus. Coll. specimens from Victoria (*Lea*) and Hunter River, New S. Wales.

A very large, dull, blackish-brown species, 30–40 mm. in length. *Wings* in males very much dilated on fore border.

*Face* with distinct tubercle, the moustache composed of black and yellowish hairs. *Antennæ* have the first joint twice as long as the second (not equal in length as v. d. Wulp states). *Abdomen* with yellowish-grey tomentum and very short fulvous pubescence on dorsum, sides with longer yellowish hairs. Male genitalia rather large, black. Female ovipositor small, the eighth segment distinct. *Legs* stout, red; base of femora, knees, and tarsi black, the numerous bristles are black. *Wings* much dilated in male, not usually so in females, but the submarginal cell is rilled as in male, hyaline, with yellowish-red veins; posterior branch of third vein strongly curved; second posterior cell broad at base, bulging into the first one; the third nearly as wide as the second, the fourth and anal cell closed, the small transverse vein beyond the middle of discal cell.

#### ASILUS in sensu stricto.

Linn., Syst. Nat. ed. x. pp. 605, 227 (1758).

This genus, in the narrowest sense, is usually defined as comprising large bright-coloured species; the abdomen at sides near the segmentations without any bristles; dorsum with short appressed pubescence; ovipositor conical, not compressed. The following species appear to belong to this genus, but *Asilus inglorius* and *discutiens* differ from the other species by the presence of thick tufts of hair on the basal segments of abdomen, on dorsum, though not reaching the median line; they approach *Pamponerus* in this character, but the facial tubercle and non-contrasted colouring of wings prevent their inclusion in that genus.

*Asilus inglorius*, Mackay, in King's 'Narrative of a Survey of the Coast of Australia,' London, ii. p. 467 (1827); Wied., Auss. zweifl. Ins. ii. p. 644 (1830); Schiner, Verh. zool.-bot. Ges. Wien, xvi. p. 690 (1866), et Reise 'Novara,' Dipt. p. 183 (1868).—*Asilus anycla*, ♀, Walker, List Dipt. ii. p. 423 (1849), et vii. Suppl. 3, pp. 730, 734, 741 (1855). *Asilus centho*, ♂, Walker, l. c. p. 431, id. l. c. pp. 730, 733, 740. *Asilus planus*, ♀, Walker, l. c. vii. Suppl. 3, pp. 730, 741; Schiner, Verh. zool.-bot. Ges. Wien, xvi. p. 690 (1866).

*Asilus murinus*, Macq., Dipt. Exot. i. (2) p. 260 (1838).

*Asilus rubrithorax*, Macq., Dipt. Exot. i. (2) p. 259 (1838).

*Asilus rufiventris*, Macq., l. c. p. 260.

*Asilus sydneyensis*, ♂, Macq., l. c. p. 260; Schiner, Reise Novara, Dipt. p. 189 [*Itamus*] (1868); Kertész, Cat. Dipt. [*Itamus*] (1909).—

- Asilus jacksonii*, ♀, Macq., l. c. p. 261. ? *Asilus tasmanicæ*, ♂, Macq., l. c. p. 261; v. d. Wulp, Termés. Füzetek, xxi. p. 237 [? *Aratus*] (1898). ? *Asilus nigratarsis*, Macq., Suites à Buffon, i. p. 304 (1834). *Asilus amythaon*, ♀, Walker, List Dipt. ii. p. 423 (1849). *Asilus maso*, ♀, Walker, l. c. p. 424.
- Asilus pelago*, Walker, l. c. p. 419, et vii. Suppl. iii. pp. 729, 731, 735 (1855); Schiner, Verh. zool.-bot. Ges. Wien, xvii. p. 400 (1867).
- Asilus blasio*, Walker, List Dipt. ii. p. 441 (1849), et vii. Suppl. iii. pp. 730, 731, 738 (1855).
- Asilus discutiens*, Walker, Ins. Saund. i. p. 135 (1851), et List Dipt. vii. Suppl. 3, p. 736 (1855).—*Asilus malleolus*, Walker, List Dipt. ii. p. 418 (1849), et vii. Suppl. 3, p. 736 (1855).
- Asilus hyagnis*, Walker, Ins. Saund. ii. p. 139 (1851).

### *Asilus inglorius*, Mackay.

*Asilus amycla*, ♀, Walker.

*Asilus centho*, ♂, Walker.

*Asilus planus*, ♀, Walker.

The types of *amycla* and *centho* are from New S. Wales; the type of *planus* from Australia.

There is a long series of specimens in the Brit. Mus. Coll. from Burpengary, Queensland. The identification of this apparently common species with *Asilus inglorius*, Mackay, is given on the authority of Schiner, who confidently asserts it, but the original description consists of merely a few lines. Schiner suggested that *A. planus* and probably *A. amycla* were synonyms of it, and was correct. The species is easily distinguished by the bushy bright yellow hairs on the three basal segments of *abdomen* and by the red *legs* with tarsi black.

Length, ♂ 25, ♀ 24 mm.

A series of this species is labelled in the Paris Museum as *Asilus sericeiventris*, evidently a MS. name only of Macquart's.

♂ ♀.—*Face* black, covered with greyish tomentum and with whitish or yellowish short pubescence. Moustache consists of bristly yellow hairs on the not very prominent tubercle, with weaker hairs below. *Palpi* black, with bristly yellow hairs. Beard pale yellowish or white. *Antennæ* reddish, the basal joints with yellowish hairs; bristle on third joint long. *Forehead* black, with grey tomentum and strong yellowish hairs on each side, at vertex some strong yellow bristles; pubescence on hind part of head pale yellow. *Thorax* brownish, with grey tomentose stripes and markings; pubescence on dorsum black, scanty, with very strong black bristles at sides and posteriorly. *Scutellum* as thorax, bordered with black bristles. *Abdomen* brownish, with a black median stripe, and covered with grey tomentum; pubescence largely fulvous, black on the median stripe; the pale yellow tufts on

basal segments nearly meet in the middle; sides of abdomen with yellow bristles on posterior border of each segment; underside brownish, with pale yellow pubescence; ovipositor of female distinct; genital organs of male blackish. *Legs* red; coxæ, knees, and tarsi black, coxæ covered with grey tomentum and with yellowish pubescence; femora with short black pubescence above, and longer yellowish hairs below, bristles chiefly black; tibiæ with short black and yellow pubescence, the latter, more fulvous in colour, as a thick short fringe on the underside of fore pair, all are swollen at apex, bristles black; tarsi with black bristles and pubescence, with fulvous pubescence on the underside of the basal joints of fore pair. *Wings* hyaline, tinged yellowish, grey at the apex, veins reddish; neuration as in *Neoaratus hercules*, but the costa is not produced outwardly in either sex; small cross-vein is at about the middle of the discal cell.

*Asilus murinus*, Macq.

Type seen in Paris Museum, 12. 4. 11.

In Brit. Mus. Coll. a male and two females, from New South Wales.

Macquart's description is as follows:—

Greyish. *Legs* red; tarsi black.

Length, ♂ 9, ♀ 10 lines.

Face and forehead whitish yellow; moustache white, only occupying the lower part of face; a few black bristles below. Beard white. Thorax yellowish, with the intermediate stripe divided. Abdomen of a somewhat reddish grey, with white bristles; genital organs, ♂ and ♀, black. Knees slightly black. Wings hyaline, a little yellowish, at apex greyish. From New S. Wales. Paris Museum.

A dusky dull-coloured species with red *legs*. *Face* covered with greyish tomentum, tubercle prominent. Moustache composed of many stout yellowish or white bristles with black ones *above*. The first two joints of *antennæ* black, with black bristly pubescence. *Forehead* a little darker than face, with black hairs. *Thorax* blackish, with yellow tomentose stripes and markings. Pubescence on dorsum black. *Scutellum* covered with grey pubescence, some stout black bristles on posterior border. *Abdomen* black, covered with olive-coloured tomentum and with some appressed yellowish pubescence; hairs at sides yellowish; the eighth segment of abdomen deep black, with some black hairs; ovipositor very small (♀); in the male the eighth segment is hidden or very

small, the genital organs rather large, swollen, black, with black hairs; underside of abdomen black, covered with grey tomentum. *Legs* red, knees and tarsi black, bristles chiefly black. Pubescence white on fore coxæ and femora below, where it is long, short elsewhere with some black hairs. *Wings* tinged slightly yellow, greyish at apex and on fore border; venation as in *Neoratus hercules*; small transverse vein just below middle of discal cell.

Length of specimens 25–27 mm.

*Asilus rubrithorax*, Macquart.

A male seen by me in Paris Museum, 12. 4. 11; not the actual type, which is said to be in very bad preservation, but this specimen one of a series of specimens of the species. I also saw a female. A specimen I took for comparison is identical. The *thorax*, described as reddish, is denuded; the third joint of *antennæ* is reddish above.

In Brit. Mus. Coll. specimens from New South Wales.

A species with blackish *abdomen*, covered with grey tomentum; black and yellow striped *thorax*; reddish *legs*; *wings* clear.

Length 28 mm.

*Face* black, covered with greyish tomentum; tubercle large and prominent on lower part of face. Moustache of black bristly hairs, with long yellow ones below round mouth. *Palpi* with long yellowish and black hairs. *Antennæ* long, black, the first two joints with yellowish and black hairs, the third joint with a long arista. *Forehead* same colour as face, with black pubescence; on vertex and round head the hairs are white. Beard white. *Thorax* black, with grey tomentose stripes and markings, and rather long black pubescence on dorsum; sides black, with grey tomentum, black bristles above and greyish pubescence below. *Scutellum* covered with greyish tomentum and with yellowish and some black bristles. *Abdomen* blackish, with yellowish-grey tomentum and black pubescence and with yellow bristly hairs on posterior borders of segments at sides and whitish pubescence on sides; underside same colour, with whitish pubescence; genital organs in male prominent, black and fulvous; ovipositor in female distinct. *Legs* deep red, the knees, apices of tibiæ, and all tarsi black, the femora black on their upper outer borders: pubescence on coxæ and under part of femora whitish, on tibiæ short and whitish, all bristles black; posterior femora armed with row of short black bristles. *Wings* hyaline, grey at apex, veins brown; the second posterior cell bulging somewhat into the first posterior cell, but

its base outside the third vein not so wide as the part inside above discal cell in the male, in the female it is as wide as the small transverse vein just below the middle of discal cell.

*Asilus rufiventris*, Macquart.

Type seen by me in Paris Museum, 12. 4. 11.

Specimens in Brit. Mus. Coll. from Victoria, Moreton Bay, and Toowomba, Queensland.

A handsome species, not unlike *Asilus pelago*, Wlk., but easily distinguished by the reddish femora, the tibiæ pale yellow, and by only the ovipositor in the female being black; in the Walker species the last segment is also black.

Macquart describes it thus:—

Thorax chestnut, with black stripes. Abdomen red. Femora testaceous, tibiæ red, tarsi black.

Length 13 lines, ♂ ♀.

Face, moustache, and forehead pale yellow. Beard white. Antennæ with the first two joints testaceous, the third black. The intermediate stripe of thorax divided by a whitish line. Sexual organs brown, ♂ ♀. Posterior femora elongated. Wings yellow, apex brownish.

From New South Wales.

*Asilus sydneyensis*, Macquart.

*Asilus jacksonii*, Macq.

? *Asilus tasmaniae*, Macq.

? *Asilus nigratarsis*, Macq.

*Asilus amythaon*, Wlk.

*Asilus maso*, Wlk.

Type of *A. sydneyensis*, a male, seen in Paris Museum, 12. 4. 11: from Sydney. Type of *A. jacksonii*, a female, seen at the same time, is identical: from New South Wales. *Asilus tasmaniae*, from the description, would appear to be identical, also a male: from Hobart Town. *Asilus nigratarsis*, the same: from Hobart Town and New Guinea.

Type of *Asilus amythaon*, a female, is from Hunter River, New South Wales (presented by Lord Derby). Type of *Asilus maso*, a female, from unknown locality.

Face narrow, broader below, covered with yellowish tomentum; the tubercle large, taking up almost half the face, moustache on it composed of numerous white bristles and some black ones above. Palpi with black pubescence. Antennæ black, the first two joints with black bristly hairs. Forehead very similar to face, with black hairs. Thorax blackish, with yellow tomentose stripes and markings, black

bristles on sides and posteriorly, sides with grey tomentum. *Scutellum* covered with yellowish tomentum and some black bristles. *Abdomen* bright fulvous, blackish at base, at apex deep shining black, with no bristles, but some golden-yellow pubescence at sides and on segmentations; these last are blackish; genital organs large, black, with blackish pubescence. *Legs* red, knees and tarsi black, fore coxæ and femora with white hairs; all bristles black, middle and posterior femora below with bristles. *Wings* hyaline, yellowish, tinged grey at apex and on fore border; neuration as in *Neouratus hercules*, but the fore border is hardly perceptibly dilated; small cross-veins just below the middle of discal cell.

The species is very similar in general appearance to *Asilus rufiventris*, but is smaller, and the antennæ are dark and moustache not wholly yellow. The ovipositor in the female of this species is very small, appearing beyond the eighth segment of abdomen, which is black with black hairs.

Length, ♂ 24-26, ♀ 22-24 mm.

Schiner was of opinion that *Asilus nigritarsis* was the same as this species, but does not give the name priority owing to its being preoccupied; he also gave *Asilus tasmanie* as a synonym.

#### *Asilus pelago*, Walker.

Type (male) from Swan River.

Type (female) from New South Wales (presented by Haslar Hospital), and others from Swan River and Adelaide.

This is a handsome species, with reddish-yellow *abdomen*, sides and apex black, femora black, tibiæ yellow on basal half.

Length, ♂ 23, ♀ 27 mm.

*Male*.—*Face* black, covered with pale yellow tomentum on upper part; tubercle not prominent, bearing the thick yellowish-white moustache, composed of long weak bristles. Beard the same colour. *Palpi* blackish, with black bristly hairs. Antennæ brown, the third joint conical, rather short and broad compared with those of *Asilus rufiventris*, with a long terminal arista. Hind part of head with whitish hairs and with short black bristles at vertex. *Thorax* brownish, with black stripes; sides with stout black bristles and two below base of wing; posterior part of dorsum with numerous black bristles and hairs, the whole of dorsum with short black pubescence. *Scutellum* with two long, incurved, black bristles, and hairs or shorter bristles interspersed. *Abdomen*

reddish yellow, the first two segments almost wholly blackish, the eighth and genital organs black; underside dull rufous where the upper part is reddish yellow; dorsum almost bare, a tuft of black hairs on sides of first segment, and black hairs on remaining ones at sides; short yellow pubescence on dorsum. *Legs* black, the coxæ and fore femora below with white hairs, the middle and posterior femora with black bristles below; the tibiæ yellow on basal two-thirds, with short yellow pubescence; elsewhere pubescence is black; all bristles black. *Wings* hyaline, the veins yellowish, the small cross-vein beyond the middle of discal cell, submarginal cell rilled.

*Female* identical; the ovipositor conical, black, a little longer than the last segment.

*Asilus blasio*, Walker.

Type (♂) from Perth, W. Australia (purchased G. Clifton).

Two males and six females from Daudenong Ranges in Mr. French's Coll., from which the description is given; the type is very old and worn.

A well-marked species, with black-stippled *thorax* and *abdomen* and red *legs*, with knees, tarsi, and short stripes on the femora black.

Length, ♂ 15–19, ♀ 16–22 mm.

*Face* black, with yellowish tomentum, whitish below the antennæ; tubercle prominent, large, bearing the black moustache, some white bristles intermixed, chiefly below. *Palpi* black, with long black pubescence and some white hairs. Beard of long white pubescence. *Forehead* greyish, with black pubescence, hairs round hind part of head white, with black bristles at the vertex. *Thorax* grey, with five black stripes, the median one divided, those next to it short, not reaching the shoulders, the outer ones a little longer; pubescence black, longer posteriorly; sides and breast covered with stripes of yellowish tomentum and some scanty white pubescence; black bristles on sides and posterior part of thorax; *scutellum* covered with yellowish-grey tomentum and with black bristles posteriorly. *Abdomen* covered with yellowish-grey tomentum, with a wide, black, median dorsal and narrower lateral stripes; pubescence on dorsum follows the colours; weak yellow bristles are apparent on the sides of each segment as far as the sixth one, with yellowish-white hairs below; on the last two segments bristles and pubescence are black; anus of female black, shining, with black hairs; the genitalia of male prominent, black; underside of



abdomen black, with greyish tomentum and white pubescence. *Leys* bright red; knees, apices of tibiæ, all tarsi black; in some of the specimens (not in the type) a black streak is present on basal half of hind femora; pubescence of legs black; on femora below are white hairs; all bristles black, some stout ones on underside of middle and posterior femora. *Wings* hyaline, grey; veins blackish, the small cross-vein a little above the middle of the discal cell; first posterior cell hardly narrower where the first vein from the discal cell borders it, as the second posterior cell hardly bulges at base; fourth posterior cell closed. Halteres reddish yellow.

*Asilus discutiens*, Walker.

*Asilus malleolus*, Walker.

Type (female) from New South Wales (Saunders Coll.), and a male from the same place (*J. J. Walker*); another from Van Diemen's Land (*Jensen*).

Type of *malleolus* (male) from unknown locality.

Var. B is not to be identified.

In the Paris Museum a long series of this species is labelled in Macquart's handwriting "*Asilus unilineatus*," evidently only a MS. name.

The species is nearly allied to *Asilus inglorius*, Macleay, but is distinguished by the more robust form of the males and by the darker colouring of the abdomen in both sexes and by the thick hairs on abdomen being continued on the sides of the third segment. It is blackish in colour, with tufts of yellow hairs and short yellowish pubescence on the abdomen. *Palpi* with black pubescence, and the yellow moustache has some black hairs above and below. The yellow bristles on the *legs* mentioned by Walker appear only as two paler bristles on the posterior tibiæ in the female, and are not present in the male.

*Asilus hyagnis*, Walker.

Type (male) from New South Wales (Saunders Coll.). Two males and three females from Burpengary, Queensland (*Dr. T. L. Bancroft*), 1904.

This species is apparently distinct, not a synonym of any of Macquart's, as far as can be judged without seeing all the types of the latter author. The redescription is based on the fresh specimens.

Species with reddish *legs*, armed partly with white bristles

on the femora and tibiæ. *Abdomen* olive-coloured, with greyish-yellow tomentum. *Wings* hyaline, grey at base.

Length 23 mm.

*Face* black, covered with yellowish-grey tomentum; the moustache on the prominent tubercle consists of yellowish-white bristles; palpi black, with yellowish-white hairs. Beard whitish. *Antennæ* with black pubescence on the first two joints; forehead same as the face, with some white hairs; hind part of head with yellowish-white hairs. *Thorax* black, with greyish stripes and markings; pubescence short and black, some black bristles on sides and posteriorly; sides and breast covered with ashy-grey tomentum, and long white hairs on breast. *Scutellum* as thorax, armed posteriorly with two strong black bristles. *Abdomen* covered with greyish-yellow tomentum and with short fulvous pubescence, at the sides with yellowish hairs, and some yellow bristles on each segment at the sides and before the segments; genital organs prominent, black; underside of abdomen chiefly covered with greyish tomentum. *Legs* reddish yellow, shining; coxæ grey, with yellowish-white pubescence; femora with some long, scanty, yellowish bristly hairs below and short black pubescence above, with short and long yellowish bristles; on the middle femora there are some stout black ones; anterior and middle tibiæ with weak yellowish hairs and some very short black pubescence, the posterior pair with short black and yellow pubescence; the bristles on the anterior and middle pair are yellow, long and short ones, with some black ones at their extreme apices and on the underside of the middle pair; the posterior tibiæ with strong yellow bristles; tarsi largely black at their apices, with yellow and black bristles, but only black ones on the posterior pair, pubescence black, yellowish below. Halteres yellow. *Wings* hyaline, the grey shading extends from the apex almost to the base of the two branches of the third longitudinal vein and as far as the fifth posterior cell; neuration as in *Asilus inglorius*, Macleay, but the small transverse vein is below the middle of the discal cell; veins yellowish.

#### ASILUS in sensu lato.

*Asilus alcetus*, *cœdicius*, *margitis*, and *villicatus*, Walker, are not true *Asilus* species, but their genus, owing to state of types, is impossible to determine.

The same is the case with *Asilus exilis*, *laticornis*, and *rarifemoratus*, Macq.

The following species not known to me must remain in *Asilus in sensu lato* for the present :—

*Asilus acutanpulatus, armatus, australis, cognatus, ferrugineiventris, filifera, fulvipubesces, longiventris, nigrinus, ruficoxatus, rufometatarsus, setifemoratus, vittipes*, Macq. ; *belzebul*, Wied. (v. d. Wulp could not find this type in the Leyden Museum ; Wiedemann described it from unknown locality, but later Macquart recorded a male he thought was a specimen of this species from New South Wales) ; *regius*, Jaennicke ; *smithii*, Hutton.

*Asilus crabroniformis*, L., in Kertész's Cat., has Tasmania given with a query as one of the localities in which it occurs ; but this is probably an error on the part of Walker (see Verrall, 'British Flies,' vol. v. p. 649, 1909).

The following Walker types from Australia and Van Diemen's Land are not to be found in the Brit. Mus. Coll., and should be expunged from any future list :—

*Asilus elicitus.*

*Asilus alicis.*

*Asilus lactificus.*

*Asilus alligans.*

The following types from unknown localities are also not to be found :—*Asilus eanes, halmus*, and *iuumbratus*,

*Asilus antiorus* and *corythus* are species of the genus *Proctacanthus*.

The following types of Walker cannot be placed in their correct genus, owing to their imperfect condition ; all, with the exception of *Asilus alcetus*, are small species which will not belong to *Asilus in sensu stricto*.

*Asilus obumbratus*, Walker,

Dipt. Saund. p. 145 (1851), et List Dipt. vii. Suppl. 3, p. 735 (1855).

Type (female) from New South Wales (Saunders Coll.) seems allied to the genus *Cerdistus*, but the ovipositor ends in a fork. It is a small black species with apparently dull yellow legs.

*Asilus alcetus*, Walker.

List Dipt. ii. p. 425 (1849), et vii. Suppl. 3, p. 736 (1855).

? *Asilus trachalus*, Walker, Dipt. Saund. i. p. 143 (1851), et l.c. p. 733.

This type is from Van Diemen's Land (*R. Buller*), in bad preservation. A medium-sized greyish-black species.

Schiner placed it in the genus *Neoitamus*, but it does not belong to that genus, and the species Schiner described in Verh. z.-b. Wien, xvii. p. 408 (1867), must be an altogether different species from this type, which is apparently an *Asilus* species, though the sides of *abdomen* have strong black bristles; ovipositor small, conical. *Legs* red, tarsi blackish, fore femora with some black bristles below. Moustache chiefly yellow.

The type of *Asilus trachalus* from same locality, a female in a very greasy state, is probably identical with the above.

*Asilus cædicius*, Walker.

List Dipt. ii. p. 457 (1849), et vii. Suppl. 3, p. 735 (1855).

Type from New Holland (abdomen destroyed) and another female may possibly belong to the genus *Eutolmus*, but are in too imperfect a state for identification. A small black species, with the tibiæ partly yellow.

*Asilus margitis*, Walker.

List Dipt. ii. p. 461 (1849), et vii. Suppl. 3, p. 737 (1855).

Type (female) from Melbourne has lost its abdomen. A small black species with tibiæ dull testaceous. Walker suggests his *Asilus cædicius* may be a variety of this species.

*Asilus villicatus*, Walker.

Dipt. Saund. i. p. 147 (1851), et List Dipt. vii. Suppl. 3, p. 734 (1855).

The type (a female), from New South Wales, is very small; the male type mentioned by Walker is not to be found. It was suggested by Schiner that it might be identical with his *Neoitamus melanopogon*, now identical with *Neoitamus varius*, Walker; this is not the case, and the species hardly seems to belong to the genus *Neoitamus*. Till further material is available, its correct generic place must be left uncertain. In size and general appearance it seems related to *Asilus exilis*, Macquart.

The following three types of Macquart, seen by me in the Paris Museum, 12. 4. 11, could not be placed in their correct genus either owing to being isolated specimens or because of their state of preservation.

*Asilus exilis*, Macquart.

Type (a male) seen by me in Paris Museum, 12. 4. 11.

A very small species, measuring 12 mm.

Face narrow, with a distinct tubercle. Moustache composed of many white and black hairs. *Antennæ* black, the first two joints with black hairs, the third conical, with a long arista. *Thorax* black, marked with grey tomentose stripes and with black bristles at sides and posteriorly; *scutellum* with white bristles. *Abdomen* blackish, with lighter segmentations and pale pubescence. *Legs* black, tibiæ and coxæ reddish, femora with white hairs below. Genitalia club-shaped, with fine filaments below.

*Asilus villicatus*, Wlk., might possibly be identical.

*Asilus laticornis*, Macquart.

Type (a female) in very bad preservation, with the antennæ destroyed, seen by me in Paris Museum, 12. 4. 11.

It is evidently a small species of the genus *Asilus in sensu lato* with the neuration of wings normal, the fourth posterior cell closed, the small transverse vein situated just beyond the middle of discal cell. *Abdomen* with a short conical ovipositor, the segmentations greyish tomentose. *Legs* black, tibiæ apparently testaceous.

In Macquart's figure of the *antennæ* the third joint is short, about as long as the first two together, and broad, with a terminal arista shorter than the joint itself.

*Asilus varifemoratus*, Macquart.

Type seen in Paris Museum, 12. 4. 11; part of the abdomen gone.

A small species. Moustache white, *antennæ* black. *Abdomen* black, the pubescence white; segmentations appear to be reddish. *Legs* black, femora with white hairs below; tibiæ yellow-red, black at apices; tarsi yellow-red, black at apices, bristles largely white. *Wings* clear, grey at apex, the fourth posterior cell closed.

Of the *Asilus* species of Walker from other parts of the Australasian Region, *Asilus areolaris* ♂ ♀ and *areolatus* ♂, from Celebes, are species of *Pamponerus*. *Asilus determinatus* and *introducens* are nearly allied to *Asilus discutiens*, Wlk., having tufts of bright-coloured or white hairs on basal segments, but the ovipositor in females seems entirely different.

*Asilus condecorus* type appears to be lost. *Asilus biligatus*, *didymoides*, *depulsus*, and *tenuicornis* appear to be species of *Asilus in sensu stricto*. The generic place of *Asilus complens*, *lævis*, and *superveniens* appears to me doubtful.

#### PAMPONEURUS, Loew.

Linn. Ent. iv. p. 135 (1849).

This genus was divided off from *Asilus* by Loew, being distinguished by the long outstanding pubescence on abdomen, whereas in *Asilus* the abdomen is almost bare. Wings with two strongly marked colours, usually whitish at base. Face with a large tubercle; moustache nearly reaching the antennæ.

The species are few.

The type of genus is the widely spread European *P. germanicus*; the only other species are *P. nigritulus*, v. d. Wulp, from Molucca Isles, *P. mendax*, Wlk., from Celebes, and *P. areolaris* ♂ ♀ and *areolatus* ♂, Wlk. [*Asilus*], also from Celebes.

The typical colouring of wing is only present in the male of *areolaris*, a species very similar to *mendax*, but the legs are almost wholly reddish yellow.

#### *Pamponeurus mendax*, Walker.

Trans. Ent. Soc. London, 2 ser. iv. p. 130 (1857), et Proc. Linn. Soc. London, v. p. 260 [*Asilus*] (1861); v. d. Wulp, Tijd. v. Entom. xli. p. 135, pl. iv. figs. 9-10 (1898), et xlii. p. 55 (1899).

Type (male) from Menado, Celebes.

Wings milky white at base. It has been fully redescribed by v. d. Wulp.

#### *Pamponeurus nigritulus*, v. d. Wulp.

Tijd. v. Entom. (2) vii. (xv.) p. 235 (1872), et Tijd. v. Entom. xli. p. 137 (1893).

From Moluccas.

Described as black, the pleuræ and abdominal segmentations grey. Face yellowish or grey; moustache black, with a few whitish hairs below. Abdomen rather broad, black or blue-black; the hairs on sides of first two segments whitish, elsewhere black. Wings pale brownish, grey at apex.

Length 7-8 lines.

EUTOLMUS, Loew.

Linn. Ent. iii. p. 459 (1848).

A species described by Macquart as *Asilus armatus* (see Dipt. Exot. Suppl. 1, p. 219, pl. viii. fig. 17, 1846) has been placed, evidently in error, under *Eutolmus* in Kertész's Cat. The reference given to Loew, Besehr. Europ. Dipt. ii. p. 164, note 2 (1871), refers to *Machimus armatus*, Jacqu., a European species now stated to be a synonym of *Machimus pilipes*, Meig. From the figure of *Asilus armatus* it is evidently not a species of *Eutolmus* or *Machimus*, if the figure is at all correct.

The genus has thus not yet been recorded from the Australasian Region nor from the Oriental Region.

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L.—Note on some *Pseudoscorpions* in the British Museum.

By EDV. ELLINGSEN.

ONE of the most interesting facts to record concerning the collection in question is a biological one—that of the capture of *Chelifer bayoni*, Ellingsen, on a bird, *Anas undulata*. In my paper "Die Pseudoskorpione des Berliner Museums"\* , p. 402, I made a remark regarding the capture of *Chthonius tetrachelatus*, Preyßler, a Palæarctic species, in the Seychelles Islands, in the Indian Sea. I wrote:—"Wie diese zerbrechlichen, kleinen Tierchen, die paläarktisch sind, in die weit entfernt liegende Inselgruppe Seychellen gekommen sind, ist nicht leicht zu fassen; vielleicht möchten sie mit Vögeln verschleppt worden sein." Till that time (1910), or, rather, till now, no record of the capture of a pseudoscorpion on a bird has, as far as my knowledge goes, been given in the literature. The notice mentioned above is thus the first record of such a thing, and this fact is of great value in the explanation of the occurrence of pseudoscorpions in places where they beforehand could not be expected to be found, such as the capture of *Chthonius tetrachelatus* in the Seychelles. Thus this biological fact is available for the solution of a zoogeographical question.

Another fact of some interest is the occurrence of *Chelifer nodosus*, Schrank, in Africa. This is a European species, often found clinging to the feet of flies in houses; the same is the

\* Mitt. aus. d. zoolog. Museum in Berlin, iv. Bd. iii. Heft. (1910).